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ABSTRACT

This report recommends that states raise their standards for entering a teacher education program and for earning a teaching license. This report links student achievement with how well teachers are prepared and the ongoing training they receive. It looks at teaching in the middle grades today, examining whether teachers have the content knowledge needed to teach their assigned classes, and noting that most states set the passing scores on teacher assessments so low that they offer little assurance of high quality teacher trainees. The report discusses what prospective teachers need to know in order to enter a teacher preparation program, discusses how states can attract the best and brightest to teaching careers, and describes how to improve teacher preparation for middle grades teaching. Following a discussion of how to improve teacher retention, renewal, and recertification, the report examines ways to support good teaching through continuous improvement, describes good professional development, and examines the climate for change. The report makes a series of recommendations for states and districts to consider as they focus on improving education in the middle grades. The recommendations include upgrading teachers' knowledge in specific subjects and improving their knowledge of young adolescents and how they learn best. (SM)

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SREB

Improving Teaching in the Middle Grades: Higher Standards for Students Aren't Enough

SP 038 356

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Regional
Education
Board

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Recommendations

How can states improve teaching in the middle grades?

The following 11 recommendations were made in the Southern Regional Education Board report "Improving Teaching in the Middle Grades: Higher Standards for Students Aren't Enough."

1. States should eliminate licenses that overlap in the middle grades and should have different requirements for teachers of those grades.

2. States should require potential teachers of the middle grades to have at least an academic minor in content areas they teach.

3. States should examine entrance requirements for teacher education programs and consider raising the standards.

4. States should encourage partnerships between higher education institutions and middle grades teachers, students and families that focus on the link between learning challenging content and preparing for rewarding careers. These efforts should continue through high school, where special programs and scholarship options can encourage more of the "best and brightest" to become teachers.

5. States should use the results of entrance tests to teacher education programs as one measure of whether high school and higher education programs effectively prepare students for advanced college studies.

6. States should require prospective teachers in the middle grades to have a student teaching experience with middle grades students.

7. States should use the results of teacher licensure tests and teacher performance assessments to evaluate the effectiveness of college and university programs that prepare teachers.

8. States should call for and fund planned support and assistance to beginning teachers at the district level.

9. States should require all current teachers in the middle grades who do not have a content minor or major to acquire within five years the equivalent of content minors in subject areas they teach.

10. States and districts should require every school to have a professional-development plan that is linked to student performance on state and local standards.

11. States and districts should identify funds spent on professional development and should measure the results of those funds through the school accountability process. All new funding for professional development should be tied to school improvement plans.

des Education Initiative.
rk Foundation.

Sondra Cooney is director of the Southern Regional Education Board's Middle Grades Education Initiative.
This is the third in a series of reports funded by a grant from the Edna McConnell Clark Foundation.

How are middle grades teachers selected and educated, introduced into schools, assigned classrooms and subjects, and encouraged to grow professionally? In two previous reports, the SREB focused on the importance of raising standards and expectations for student performance in the middle grades. But if students are expected to perform at the highest levels, shouldn't we expect the same from teachers? Shouldn't we set high standards for those who seek to become teachers? And shouldn't we expect teachers to be prepared to teach rigorous academic content and to apply research on the best teaching practices in classrooms?

Teaching in the middle grades today

Because of practices in teacher preparation, licensure and assignment to classrooms, too many teachers in the middle grades have too little knowledge of the subjects they teach. Teachers who never have taken advanced English courses, physics, chemistry or college algebra can teach seventh- and eighth-grade pre-algebra, algebra, physical science and English in most SREB states. In SREB states, those who teach eighth-grade mathematics and science are less likely than their peers nationwide to have had college courses in their content area during the last two years. The results are predictable: lagging student achievement in the middle grades in mathematics, science and language arts.

Do teachers have the content knowledge needed to teach their assigned classes? Data from one SREB state were available to study teaching assignments by class. The SREB believes that if data were available throughout the region, the findings would be similar. In the state for which data were available:

- **Almost two-thirds of sixth-grade mathematics classes are taught by teachers with elementary education majors.**

> *Researchers in Texas and Tennessee have found that students who have less effective teachers for even one year perform at lower levels over time, even if the quality of teaching improves in subsequent years.* Teacher quality matters for student achievement.
>
> *Education Week*, Feb. 18, 1998

- More than two-thirds of eighth-grade mathematics classes are taught by teachers who majored in mathematics or mathematics education. About half of seventh-grade mathematics classes and only one out of five sixth-grade classes have teachers who majored in mathematics or mathematics education.

- In eighth-grade science, two out of five classes are taught by teachers without a science major, and only 11 percent of science classes are taught by teachers who majored in a science content area such as biology, chemistry or physics.

- In grade eight, 70 percent of the English classes are taught by teachers with a major in either elementary education or home economics education.

While comprehensive regional data are not available at all grade levels, we can say with some confidence that at least a third of the middle grades teachers in the SREB states today hold elementary teaching licenses. A study in Kentucky also concluded that at least a third of middle grades math teachers have elementary certification.

Table 1*

Middle Grades Classes and Teacher Qualifications
Percentages of Classes Taught by Teachers with Different College Majors

Subject Area, Grade Level	Elementary Education	Secondary Education	English Education Major	Math Education Major	Science Education Major	Arts and Sciences English, Mathematics or Science Major	Other** Education Majors
Math, 6th	64%	9%		6%		14%	7%
Math, 7th	31	7		40		11	11
Math, 8th	16	5		53		18	8
Algebra, 7th	22	37		41			
Algebra, 8th	2	25		56		12	5
English, 6th	82	4					14
English, 7th	57	5	6			5	27
English, 8th	36	1	15			6	42
Science, 6th	33	9			43	4	11
Science, 7th	24	5			46	7	18
Science, 8th	15	4		4	48	11	18

* Data were gathered in one SREB state.

** Most of the other education majors in eighth-grade English are home economics majors; in eighth-grade science, they are mostly health and physical education majors.

- **In rural areas of the SREB states, eighth-graders trail the nation in student achievement by a larger margin than do students in urban and suburban areas of the region. In these rural areas, a greater percentage of eighth-grade mathematics teachers (29 percent) have elementary education majors than do eighth-grade teachers in the rest of the nation (16 percent).**

  – *National Assessment of Educational Progress*, 1996

In the traditional teacher-preparation program, those who wish to teach in the elementary grades enter a general course of study to complete institutional requirements for graduation. Typically, this course of study takes two years to complete. Once students are admitted to the teacher education program, they begin learning to teach the numerous subjects taught by elementary teachers. Their electives are concentrated in courses on teaching methods for various academic areas, and they graduate with a major in elementary education.

By contrast, secondary education majors typically focus on a few subject areas, taking more courses in these areas and devoting fewer hours of study to teaching methods. Secondary education majors are required to obtain at least a minor in a content area, and most SREB states require a content major in addition to education courses for high school teachers.

Elementary licenses are usually for kindergarten through grade six or eight, and secondary licenses are often for grade six or grade seven through grade 12, but the groupings vary by state. As a result of these common state-certification practices, many middle grades teachers who hold elementary licenses are unprepared to help students deepen their knowledge and skills in specific subjects. At the same time, middle grades teachers who have secondary licenses may lack key courses that are important for teachers who work with young adolescents.

A Traditional Teacher-Preparation Program

Bachelor of Science in Education (Elementary Education Major)

50 hours in general education, to include as a minimum:

- 9 in English
- 9 in social science
- 3 in physical science
- 3 in biological science
- 3 in quantitative analysis[1]

40 hours in education major, consisting of:

- 18 hours in reading, language arts, library media
- 22 hours in teaching methods for various subject areas

29 hours in professional education requirements, including classes in psychology, technology and classroom management; and clinical and teaching internships

Bachelor of Science in Education (Mathematics Major)

50 hours in general education, to include as a minimum: (same as above)

43 hours in major, consisting of:

- 35 hours in mathematics
- 8 hours in computer science and physics

29 hours in professional education requirements (same as above)

[1] May include courses in math, statistics, or computer-programming and management-information systems

Table 2

State Certification and Licensure by Grade Groups

State	Early Childhood	Elementary Education	Middle Grades	Secondary Education
Alabama	Pre-K–3	K-6	4-8	6-12
Arkansas	K-6	1-6	5-8	7-12
Delaware	Pre-K–4		5-8	7-12
Florida	Pre-K–3	1-6	5-9	6-12
Georgia	Pre-K–5		4-8	7-12
Kentucky	Pre-K–5	Pre-K–5	5-9	8-12
Louisiana	Pre-K–K	K-8		7-12
Maryland	Pre-K–3	K-8		9-12
Mississippi		K-8		7-12
North Carolina	Pre-K–K	K-6	6-9	9-12
Oklahoma	Pre-K–3	1-8	5-9	6-12
South Carolina	K-3	1-6	5-9	9-12
Tennessee	Pre-K–4	K-8	5-8	7-12
Texas	Pre-K–K	1-8		7-12
Virginia	Pre-K–3	1-8	6-8	9-12
West Virginia	Pre-K–4	K-8	5-9	9-12

Three-fourths of the SREB states have developed a separate certification or license for middle grades teachers; some states have as many as four different, overlapping licenses that cover various grade combinations. (See Table 2.) However, licensure may not indicate effectiveness — or even readiness to teach — if the licensing requirements are not rigorous enough. Even states that have strengthened their licensing requirements in recent years still have large numbers of teachers who were licensed when standards were lower.

Some SREB states require that middle grades teachers have a "concentration" in one or two subject areas. For example, Georgia and Oklahoma require middle grades teachers to take at least 18 hours in each of two areas of concentration. Virginia, Tennessee and Arkansas require content majors for secondary educators and are recommending more content preparation for middle grades teachers.

How are teachers assigned to classrooms and students? Strengthening teacher preparation and licensure requirements can help ensure quality education. However, teaching and learning are unlikely to improve unless teachers are selected and assigned according to their expertise.

Out-of-Field Teaching

In a national study of out-of-field teaching using information from the Schools and Staffing Survey, Richard Ingersoll of the University of Georgia found the following:

- Recently hired teachers are more likely than more experienced teachers to be assigned to teach out of their field.
- Low-income public schools have higher levels of out-of-field teaching than schools from more affluent areas.
- Small schools have higher levels of out-of-field teaching than large schools.
- Lower-achieving classes often are taught by teachers without a major or a minor in the field they are teaching.
- Out-of-field teaching is more prevalent in seventh- and eighth-grade classes than in high school (grades nine through 12) classes.

Teacher selection and assignment often are based on convenience rather than content qualifications for middle grades instruction. When SREB staff members visited middle grades schools, they asked principals, "Whom do you prefer to hire, an elementary licensed teacher or a secondary licensed teacher?" Principals almost always opted for the elementary licensed teacher. Administrators maintain the flexibility to shift elementary licensed teachers among classrooms, subjects and grade levels, and they never have to report that there are teachers "out of field." Even states that have strengthened course requirements for middle grades teachers allow teachers in self-contained classrooms to teach all subjects without being considered "out of field."

Because teachers lack content knowledge and because they are assigned based on convenience rather than area of expertise, they too often are not prepared to teach effectively. Even though high school teachers are more likely to be well-prepared in their subject areas, students may struggle to meet high standards if middle school teachers did not help them build a strong academic foundation.

Recommendations:

- States should eliminate licenses that overlap in the middle grades and should have different requirements for teachers of those grades.
- States should require potential teachers of the middle grades to have at least an academic minor in content areas they teach.

Getting ready: Finding the right fit

What are prospective teachers required to know to enter a teacher preparation program? Improving the overall quality of potential teachers bears directly on strengthening the teaching skills and content knowledge of middle grades teachers.

Thirteen SREB states set minimum requirements for entrance into a teacher preparation program, and the requirements have been raised over the last 10 years. Some requirements include a minimum grade-point average; minimum scores on national tests, college entrance tests, or state- or college-specific tests; and a minimum number of core credit hours in college.

Eleven SREB states use the Praxis I Academic Skills Assessment series of tests as an entrance requirement for teacher education programs. Although the Educational Testing Service provides information about national performance on the Praxis I tests, each state establishes its own passing scores. The passing scores set by most SREB states offer little assurance of a high-quality pool of teacher trainees. (See, for example, requirements by SREB states, displayed in Figure 1:)

Seven states have set their passing scores for mathematics above the 25th percentile. However, only three of the 11 states have set passing scores above the 25th percentile on the writing test. This means that only 25 percent of national test-takers score below those states' cutoff scores. Delaware, North Carolina and Virginia set their passing scores above the 25th percentile in reading. Is scoring below the 25th percentile on a reading assessment a high enough standard for prospective teachers? And, if not, what can states do to improve the pool of prospective teachers?

How can states attract the best and brightest to a teaching career? While many students may change their minds about a career and major during their college years, states should begin their recruitment efforts before students enter college in order to attract the best and brightest minds to teaching.

Figure 1
State-Established Passing Scores on the Praxis I Academic Skills Assessment Series, 1998

(↓ indicates below 25th percentile ↑ indicates above 25th percentile)

	AR	DE	FL	GA	KY	MS	NC	OK	TN	VA	WV
Mathematics	↓	↑	↑	↑	↑	↓	↑	↓	↓	↑	↑
Reading	↓	↑	↓	↓	↓	↓	↑	↓	↓	↑	↓
Writing	↓	↑	↓	↓	↓	↓	↑	↓	↓	↑	↓

Source: Educational Testing Service

South Carolina funds several programs designed to interest students in teaching middle or high school and to support that interest through recruitment incentives and special loans to improve rural and minority students' access to teacher education programs. The Teacher Recruitment Center, which began working with middle grades students 12 years ago, is bearing fruit. In 1995, 14 percent of South Carolina's teachers were minorities; in 1997 that percentage rose to 20 percent. The center's programs that promote awareness of careers in teaching also have attracted an annual pool of teacher trainees whose SAT scores are higher than those of all SAT-takers nationwide who say they plan to enter teacher education programs. South Carolina's long-term commitment is a model for reaching potential teachers at an early age.

Georgia's PREP program, which pairs middle schools with higher education institutions, is designed to show middle grades students and their families what college is like, what students need to do to prepare for college and what kinds of courses are needed for potential careers.

What are teachers required to know to teach in the middle grades? Licensure is designed to ensure that teachers have knowledge of content and how to teach. A model licensure program would ensure that all new teachers — including teachers in the middle grades — would be well-prepared to teach the students and subjects assigned to them.

Examples of Test Items from the Praxis I Academic Skills Assessment Series

Pre-Professional Skills Reading Test

4. Alice Fletcher, the Margaret Mead of her day, assisted several American Indian nations that were threatened with removal from their land to the Indian Territory. She helped them in petitioning Congress for legal titles to their farms. When no response came from Washington, she went there herself to present their case.

According to the statement above, Alice Fletcher attempted to:

(A) imitate the studies of Margaret Mead.

(B) obtain property rights for American Indians.

(C) protect the integrity of the Indian Territory.

(D) become a member of the United States Congress.

(E) persuade Washington to expand the Indian Territory.

Pre-Professional Skills Writing Test

Directions: In each of the following sentences some part of the sentence or the entire sentence is underlined. Beneath each sentence you will find five ways of writing the underlined part. The first of these repeats the original, but the other four are different. If you think the original sentence is better than any of the suggested changes, you should choose A; otherwise you should mark one of the other choices. Select the best answer.

5. Martin Luther King Jr. spoke out passionately for the poor of all races.

(A) spoke out passionately

(B) spoke out passionate

(C) did spoke out passionately

(D) has spoke out passionately

(E) had spoken out passionate

Pre-Professional Skills Mathematics Test

2. Which of the following fractions is least?

(A) 11/10 (B) 99/100 (C) 25/24 (D) 3/2 (E) 501/500

Educational Testing Service, 1998

Recommendations:

- States should examine entrance requirements for teacher education programs and consider raising the standards.
- States should encourage partnerships between higher education institutions and middle grades teachers, students and families that focus on the link between learning challenging content and preparing for rewarding careers. These efforts should continue through high school, where special programs and scholarship options can encourage more of the "best and brightest" to become teachers.
- States should use the results of entrance tests to teacher education programs as one measure of whether high school and higher education programs effectively prepare students for advanced college studies.

All SREB states require tests for licensure or graduation from a teacher preparation program, but the current standards are low. Some SREB states use the Praxis II test series to determine readiness for licensure at the completion of a teacher preparation program. The Praxis II series offers a three-part core battery: a communication skills test, a general knowledge test and a professional knowledge test. Eight SREB states used the professional knowledge test for licensure in 1997. Four SREB states also used the communication skills and general knowledge tests.

Only one state that uses the Praxis II series — Florida — sets a passing score above the 25th percentile on the Praxis II series. (See Figure 2.) Interestingly, some SREB states with accountability systems identify schools for intervention based on the number of students who score in the bottom 25 percent on a nationally standardized test. Yet these same states accept the bottom 25 percent as "good enough" for teachers.

States also may choose to use Praxis II tests that assess knowledge of specific subjects. Nine SREB states use at least one subject assessment for licensure. However, the overall number of middle grades teachers that were tested was quite small because not all states have middle grades licenses or require subject assessment. In 1997, only South Carolina and Virginia required that prospective teachers perform at the 25th percentile or above on the mathematics assessment, and only Louisiana set its passing score at the 25th percentile in English language and literature.

Some states have begun to require additional tests for teacher licensure or to consider raising the passing scores on tests already in use, as Virginia has done. Other states are strengthening their assessment programs for beginning teachers. Arkansas is developing a performance assessment for beginning teachers and administrators. All teachers new to Louisiana must participate in the Louisiana Teacher Assessment Program. In Oklahoma and Kentucky, a three-member team observes classroom performance, provides feedback and makes recommendations regarding licensure. North Carolina requires a performance portfolio that demonstrates teaching standards and is

Figure 2

Praxis II Core Battery
State-Established Passing Scores by Test in 1998

(↓ indicates below 25th percentile ↑ indicates above 25th percentile NA – not applicable)

	AR	FL	KY	LA	MD	NC	SC	TN
Communication skills	NA	NA	↓	↓	↓	NA	NA	↓
General knowledge	NA	NA	↓	↓	↓	NA	NA	↓
Professional knowledge	↓	↑	↓	↓	↓	↓	↓	↓

Source: Educational Testing Service

evaluated by trained assessors. South Carolina is implementing a revamped assessment program for new teachers, and Tennessee has set competency standards that must be used to evaluate beginning teachers.

The state-established passing rates on both the Praxis I (entrance into teacher education programs) and Praxis II (teacher licensure) are low enough to ensure that most students will pass. Often, states have made these decisions based on concerns that setting higher passing scores will create teacher shortages. Such fears likely will continue to influence decisions about cutoff scores until states attract stronger candidates into teacher training and raise standards for teacher education programs. Georgia, Maryland, Oklahoma, Texas and Virginia have revised standards for teacher education to reflect the higher standards they now expect students to meet. In fact, Texas now holds the entire college or university responsible for the performance of its graduates of teacher education programs. Other SREB states are likely to take similar steps.

How can teacher preparation for middle grades teaching be improved? In considering reforms in teacher education, particular attention must be paid to giving prospective teachers more content-specific tools they can use to teach academic subjects and to providing student teachers with more opportunities for learning experiences in real schools.

The teaching techniques that students learn in most teacher-education programs today are not content-specific. Arts and science faculty rarely work with education faculty to identify content-specific teaching and learning strategies. The National Commission on Teaching and America's Future sponsored a study of outstanding teacher-education programs. These programs, the study found, **required middle and high school trainees to focus heavily in their academic content area and recognized that different subjects, like different students, require specific teaching strategies.**

Requiring more academic content for prospective teachers will not be effective if they are not taught content-specific teaching strategies that will work with different learners. It is no accident that:

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- **three times as many eighth-grade science students in SREB states as in the rest of the nation report never doing any hands-on science activities; and**

- **more science teachers in SREB states than nationwide report spending more of their time lecturing on science facts and terminology.**

Many teachers in the middle grades teach as they have been taught — by lecture, by textbook and without connection between the content and how to teach it effectively to young adolescents. Those who have been trained in an exemplary teacher-education program or under the guidance of a master teacher have the tools to make a difference.

When the Georgia Board of Regents asked new teachers about their professional concerns, they cited the following factors as contributing to stress and doubts about a teaching career:

- New teachers are unprepared to work with different levels of understanding in the classroom.
- New teachers often have no prior experience with teaching minority students or students with special needs.
- Supervised teaching experiences in college do not match new teachers' teaching positions. For example, middle grades teachers often do their student teaching in high school or elementary school and have little or no contact with early adolescents.

New teachers and their administrators are calling for more and varied classroom experiences before graduation and licensure. Only one SREB state — Tennessee — requires more than 12 weeks of student teaching, and only five SREB states require prospective teachers to have experiences with diverse learners. In too many teacher-preparation programs, prospective teachers do not get any classroom experience until their senior year in college, at which point it is difficult to change majors and career plans.

Many teacher-preparation programs give prospective teachers only one classroom experience, even when preparing them to teach a large span of grades — kindergarten through eighth grade, or seventh through 12th grades. **Middle grades administrators believe they have more difficulty retaining teachers because they often get teachers who do not want to teach the middle grades and who have had no exposure to middle grades students.**

Teacher trainees need more time to observe and practice-teach in different settings. In the real world of the classroom, new teachers will be asked to teach students who have very different levels of understanding and different ways of learning. But these teachers' student-teaching experience often is limited to one site, one age group and one short period of time.

Given existing certification laws and teacher education practices, many new teachers in the middle grades may not have any experience with young adolescents before their first day on the job. They may find themselves in high-poverty schools (where many new teachers are assigned) without having been exposed to the particular teaching and learning issues such schools face. They may be asked to work with "mainstreamed" special education students without any prior training in teaching such children.

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Recommendations:

- States should require prospective teachers in the middle grades to have a student teaching experience with middle grades students.
- States should use the results of teacher licensure tests and teacher performance assessments to evaluate the effectiveness of college and university programs that prepare teachers.

Improving the "three R's": Teacher retention, renewal and recertification

Even if every state immediately upgraded the requirements for degrees and licensure for every prospective middle grades teacher, it would take a generation or more to replace the teaching pool. Can we afford to wait that long to ensure that all middle grades students have teachers who know what to teach and how to teach it?

Information from the national Schools and Staffing Survey indicates that, in any given year, 4 percent to 6 percent of teachers in the middle grades leave the profession. In grades five through eight, that percentage varies by teaching assignment, academic degree, race and gender. For instance, men are twice as likely to leave teaching as women, and male teachers in the middle grades in SREB states are even more likely to quit teaching. Lower retention rates for male teachers are especially significant because men account for a smaller percentage of teachers in SREB states (23 percent) than nationally (32 percent).

In studies that the SREB has done on teacher supply and demand, teachers in the middle grades move among schools more than teachers in other levels. In Texas, middle grades teachers had lower retention rates than either elementary- or secondary-level teachers. The teachers most likely to leave are those with less than four years of experience — the teachers who may have met more challenging requirements for degrees and certificates. Middle grades teachers in Oklahoma change positions far more often than elementary school teachers and commonly move to high schools.

A study of college graduates in Texas who had teaching majors in mathematics and science found that at least half of them never made it into the classroom. In Oklahoma, 46 percent of mathematics education graduates did not seek licensure. Studies in nine SREB states show similar patterns. Only about half of all education graduates become teachers in the states where they were trained. Mathematics and science graduates are in such demand that they can command higher salaries outside of teaching.

But even though better salaries and benefits are top reasons for teacher education graduates who never entered the profession — and are factors for those who quit teaching during the first five years — they are mentioned by fewer than two out of five teachers who leave the profession after their probationary period.

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— Tennessee Middle School Principal

"We get what we pay for. How can we expect math and science graduates who are in great demand to forgo salaries that can help them pay off college debts and have something left over? One beginning teacher candidate took a job outside of teaching and is making more than I am this year — after 19 years in the schools."

For teachers who enter the profession and leave after a few years, factors such as administrative and professional support, classroom management and motivation problems are often more troubling. Too many teachers feel isolated and unsupported in a career that seems to lack respect from the public. But improving the career will be difficult if well-trained, concerned teachers quit.

These issues are serious but not insurmountable. When asked what helped them the most as they entered the teaching profession, teachers most often mentioned a cooperative, competent colleague. Seven SREB states require a formal orientation for beginning teachers by assigning each one a mentor during the first year or probationary period. The mentor, a well-experienced teacher, observes the new teacher, consults on teaching and learning issues, and demonstrates successful strategies for teaching and classroom management.

The Georgia Board of Regents recently approved guiding principles on teacher preparation. One principle addresses beginning teachers' concerns:

"Through partnerships with P-12 schools, universities that prepare teachers will have an ongoing responsibility to collaborate with schools in mentoring, induction and professional-development programs for classroom teachers and school leaders."

Maryland has established professional-development schools to promote learning about teaching in the real world of a school classroom instead of a university. However, only about 15 percent of prospective teachers are in professional-development schools. North Carolina allocates funds for college and school partnerships, and Texas is using technology and professional-development centers to link schools with higher education sites.

By law in Japan, first-year teachers have 60 full days of in-service training and a master teacher as a mentor. In addition, there are a certain number of off-site workshops required.

— *Lessons in Perspective: How Culture Shapes Math Instruction in Japan, Germany and the United States*, California State University Institute for Education Reform

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Recommendations:

- States should call for and fund planned support and assistance to beginning teachers at the district level.
- States should require all current teachers in the middle grades who do not have a content minor or major to acquire within five years the equivalent of content minors in subject areas they teach.

Supporting good teaching through continuous improvement

Our knowledge about what is good teaching and what should be taught changes constantly. No matter how well teachers are prepared, they must continue to learn as new knowledge is gained. But at this point schools and districts must play "catch-up." Are professional-development opportunities in their current form effective in upgrading teachers' professional and content knowledge?

The same words used to describe the middle grades curriculum for students can be used to describe professional development in most schools. Growth opportunities for teachers tend to be a "mile wide and an inch deep." Professional development does not link what teachers are learning to what students need or to what data say about student performance. A professional science association found that K-12 mathematics and science teachers nationwide spent an average of five days in professional development but that only a fraction of the time was spent on linking learning goals and standards to instruction in the classroom and on assessing student progress.

Professional development typically happens a day or two before the school year begins, a day during each semester and a day or so after school ends. It consists of one-shot workshops that provide no opportunities for observation, practice or feedback. If content knowledge is addressed, there are few, if any, links to classroom use. Even when teachers participate in longer training experiences during the summer, they rarely get the consistent follow-up help that is vital as they try to incorporate new ideas into their teaching. Research studies indicate that a teacher may need as many as 50 hours of instruction, practice and feedback to become comfortable using new teaching strategies.

Professional development for middle grades teachers in the SREB states is inadequate, according to information from the federal Schools and Staffing Survey and the National Assessment of Educational Progress. The pattern underscores the need for a greater focus on content knowledge in improving student performance. According to the studies:

- **Middle grades teachers in SREB states are most likely to participate in professional development on uses of technology for instruction, methods of teaching a subject and ways of grouping students to learn from each other.** – *Schools and Staffing Survey*

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- **Middle grades teachers in SREB states are less likely than their counterparts nationwide to participate in professional development that includes in-depth study in a subject or discipline and student assessment.** – *Schools and Staffing Survey*

- **In SREB states, only students of teachers who had more than 16 hours of professional development in mathematics content performed as well as eighth-graders nationwide in mathematics.** – *National Assessment of Educational Progress*

How can professional development be improved? Just as states played a major role in raising academic standards for students, state policies can be a catalyst in improving professional development. State agencies are in the best position to identify available resources for professional development at the federal, state and local levels and to determine how they are being used. Various groups' estimates of spending on professional development range from less than 1 percent to 7 percent of the educational budget, but no one is sure how much is being spent and how well the money is being used.

Delaware, Georgia, Kentucky, North Carolina, Louisiana and Alabama are among states making new investments in professional development. Georgia also completed a study of the relationship between staff development and student achievement at high-performing and low-performing schools. The study concluded that for low-performing schools to improve, they would need:

- more active leadership by principals and lead teachers;
- more collective involvement by faculty in identifying areas that need improvement;
- more focus on student learning;
- a better focus on applying what is learned in the classroom; and
- an improved plan for professional development that is focused on school improvement and that promotes classroom use and positive results for teachers and students.

The report also recommended that districts offer incentives to increase the use of research-based staff development.

A Georgia Administrator

"As a district administrator, I was responsible for reviewing school improvement plans. Only 22 percent of improvement strategies in the middle school plans were focused on instruction. If we are going to improve schools, teachers must have time to discuss, think about, try out and practice new ways to improve instruction and help students learn more."

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The El Paso Collaborative for Academic Excellence in Texas has addressed the problems of teacher preparation and professional development by joining the University of Texas–El Paso with the public schools in order to improve teaching and learning. Teachers can upgrade their knowledge of content and how to teach it through intensive training institutes. The university also has increased content requirements in its teacher-preparation programs and has improved its own courses as a result of its work with teachers in El Paso's classrooms.

In Louisville, Ky., middle grades teachers are developing lessons based on academic performance standards. To help them in this pursuit they receive a number of professional-development opportunities: training in using student performance data to design instruction; subject-matter alliances in which teachers share information about content-specific teaching strategies; and mathematics, science, language arts and social studies coaches who work with content-area teachers in low-performing schools.

One district in South Carolina has developed a new professional-growth model that is based on research and that links individuals' goals to the goals of the school and district. The district develops a menu of activities, and individuals select activities that match their goals. The activities are presented in ways that accommodate how adults learn best. The activities can include conferences; graduate classes; teacher institutes; research; professional reading; participation in curriculum review and design committees; business/industry visits and meetings; peer observations; mentoring; and professional presentations.

- **In survey responses from nearly 200 teachers at middle grades sites visited by SREB staff, fewer than half indicated that they had read professional literature in the last two years, and fewer than one in five indicated that they did any research on their own teaching or students' learning.**

The new model in this South Carolina district recognizes that informal learning is as powerful as more formal coursework or workshops. Support and recognition of teacher research and professional reading promote professionalism, improve morale and link school needs and individual goals. The South Carolina model encourages teachers to stay current in their content areas and to share their learning with colleagues. It promotes "everybody as a learner" and supports trying new strategies and changing assumptions.

Why aren't more schools and districts designing research-based professional-development plans? In Georgia's examination of professional development, high-achieving schools were more likely to have strong leadership and support at the school and district levels for linking professional development to student performance. They also were more likely to involve the faculty collectively in designing the school's staff-development program. Time and leadership, which are so important in raising student readiness for success, also are critical to teacher growth and effectiveness. It takes time to work with teachers on implementing professional-development goals that are linked to student performance.

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The time dimension: Staying the course

More than two-thirds of SREB states mandate a certain amount of time for professional development — usually five to nine days per year. But adding workdays or workshop days to the school year does not guarantee better teaching. More important factors are when the time is available and how it is used. Uninterrupted blocks of time for discussing, planning, trying out and practicing new teaching strategies with colleagues are critical, as is frequent, regularly scheduled time to reflect on practices and results and to get feedback.

Intensity: Some schools and districts "save" workdays and other contractual meeting time and use it to extend the school year for professional development. Without taking time away from instruction, these schools have an uninterrupted block at the end of the year to review student data, plan for the next year and concentrate on the school's priority needs. Other schools schedule time for regular meetings throughout the year, and some schools rely upon teachers' willingness to devote more after-school or out-of-school, paid or unpaid time to professional activities. Realistically, all three approaches are probably necessary to improve low-performing schools.

Duration: Professional development also requires the patience to stay the course. Just as there is no quick fix to student achievement, professional growth is not a one-year effort. Yet, too often, plans are developed for a one-year period or are judged successful or ineffective on an annual basis. The desire for quick results tends to short-circuit even well-developed, long-range plans. Substantial changes in teaching practice can be expected to take at least three to five years.

Focus and flexibility: Success in professional development stems from a focus on student performance and classroom instruction and the flexibility for schools to use time for and to design activities that match their individual needs. States in which student achievement has improved have required a link between professional development and school improvement. All SREB states require districts to have professional-development plans, but too often these plans do little more than gather dust. Meaningful plans are linked to accountability efforts and require professional development that focuses on improving student performance. There may be many ways to implement professional development successfully, but making it part of a school accountability process is the only way to ensure that it helps students. (See also the SREB's report *Getting Results: A Fresh Look at School Accountability.)*

Recommendations:

- States and districts should require every school to have a professional-development plan that is linked to student performance on state and local standards.
- States and districts should identify funds spent on professional development and should measure the results of those funds through the school accountability process. All new funding for professional development should be tied to school improvement plans.

A climate for change

To grow professionally and become more effective, teachers and administrators must acknowledge their beliefs, attitudes and assumptions and see how they relate to their own and to others' practices and results. They must look at what they expect from students and at how their students perform when measured against standards.

In schools visited by SREB staff, middle grades teachers shared their concerns and thoughts about important issues through focus groups and by responding to a questionnaire. Opinions were similar on most issues related to teaching practices and beliefs and attitudes about teaching and learning. However, several areas stand out because of differences in responses.

- **More than half (52 percent) of the middle grades teachers said that a teacher's performance determines students' success or failure; 45 percent said outside factors determine students' performance.**

- **Middle grades teachers are divided evenly regarding whether the best teachers are those who specialize in how adolescents learn or those who know a specific content area well.**

- **Likewise, middle grades teachers disagree on whether students should be grouped by ability levels: 57 percent said they think students should be grouped by ability, and 41 percent disagreed.**

- **Nearly half of the middle grades teachers believed that the availability of technology in the classroom would not affect their teaching practices.**

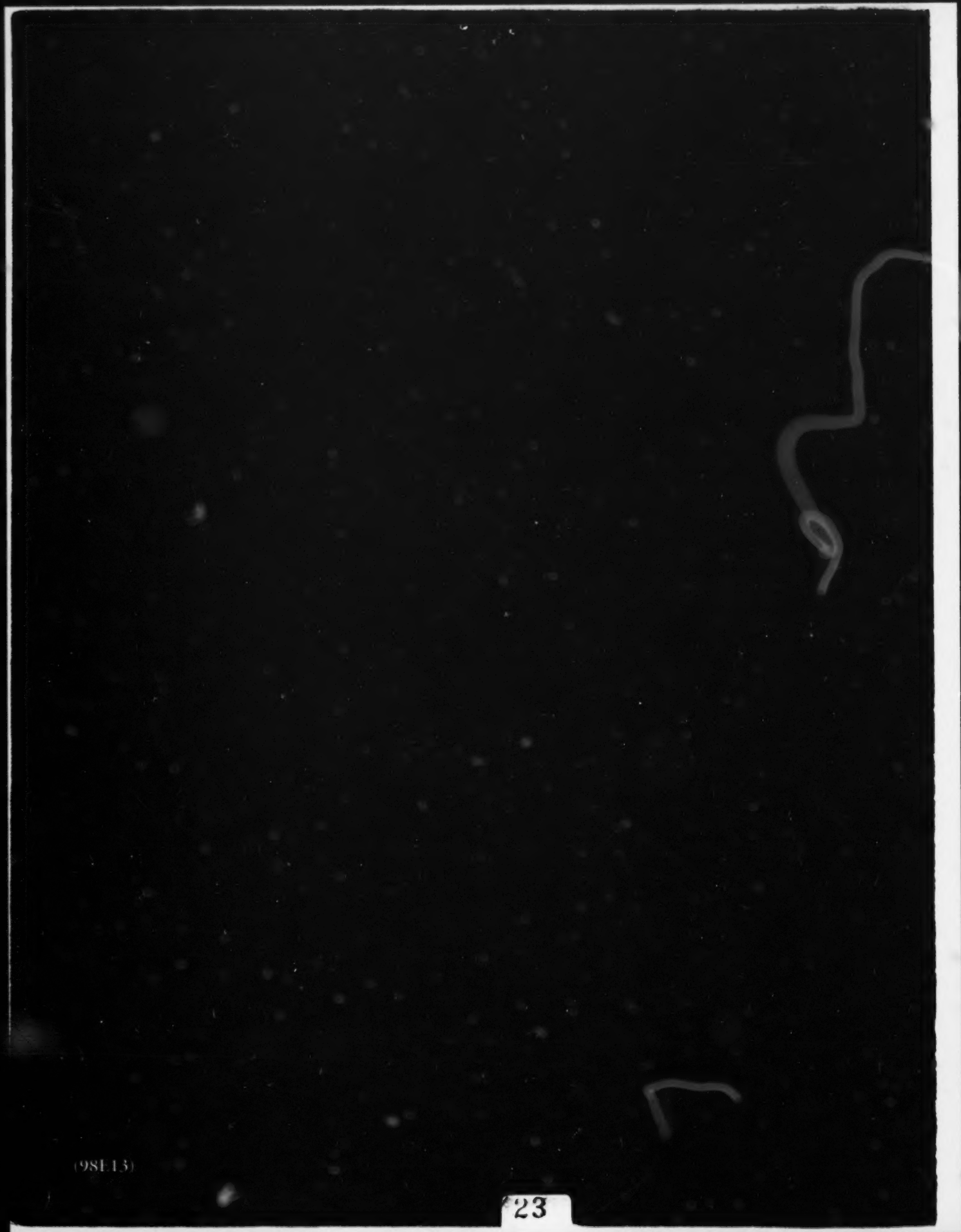
While the discussions and questionnaires are not a scientific sample, the results reflect barriers to change in middle grades classrooms. There are teachers in most schools who believe that all students can learn challenging content and should be expected to do so. These teachers likely believe that a teacher's knowledge of content is as important as a knowledge of how adolescents learn. They believe that their teaching practices should change in order to use new technology most effectively.

Tugging against these beliefs are those who continue teaching as they always have taught. They believe that students learn best when grouped by ability, with different curricula and expectations. They are more likely to blame factors outside their control for students' failure. Clearly, there are teachers who need opportunities to improve their knowledge of content and of how to teach so that all students master challenging courses.

- **Middle grades teachers in SREB states are less likely than their counterparts nationwide to change their views on teaching or to seek further information or training as a result of professional development.** – *Schools and Staffing Survey*

Nearly 40 percent of teachers surveyed and interviewed said they do not know what other middle grades and high school teachers are doing and expecting. *In other words, a significant number of teachers are isolated in classrooms without a picture of what others like them are doing and without conviction that what they are doing makes a difference in what students learn.*

How can setting or raising standards for students make a difference? The answer, of course, is that standards will not make a difference if policies and practices do not change. The final report in this series on middle grades will focus on the policies and practices that states, districts and schools can pursue to improve student performance in the middle grades.



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